

REMARKS

The Examiner rejected claims 1-4, 6-10 and 12-14 under 35 U.S.C. 103(a) as being as being unpatentable over Black (U.S. Patent 5,450,326) in view of Nishihata (U.S. Patent 6,714,832) and claims 15 -17 under 35 U.S.C. §102(e) as being anticipated by Lin et al (U.S. Patent 6,292,582). Applicant respectfully traverses the Examiner's rejections.

Black teaches a method that displays a graphical representation of the batch manufacturing process path. This graphical representation can take the form of "lines that coincide with paths through which lots travel in the course of the manufacturing process." (col. 1, lines 51-54) Basically, this invention serves as a graphical representation of the manufacturing process. The system disclosed in Black does not teach or suggest the apparatus disclosed in claim 1 of the patent application.

More specifically, Black fails to disclose "setting the plurality of tools as factor levels in response to at least one of the plurality of operations", "determining at least one of the plurality of operations by using an analysis of variance method with the responses, control factors, and factor levels" and "determining a best tool for the one of the plurality of operations having the most influence by retrieving a maximum statistical characteristic." Black's recitation of "providing the plurality of tools in at least one of the plurality of operations" simply discusses various processing steps that occur, such as "chemical vapor deposition" and "substrate oxidation." (col. 3, lines 1-14) The devices discussed in this section are subjected to a testing procedure, not a tool. (col. 3, lines

13-14) Fig. 1 shows the device tested after the operations. There is no discussion of tools.

Secondly, Black's recitation of "setting the plurality of tools as factor levels in response to at least one of the plurality of operations" and "determining at least one of the plurality of operations by using an analysis of variance method with the responses, control factors, and factor levels" also fails to mention tools set as factor levels. This section simply discusses different levels of product yield for different operations. (col. 5, lines 39-47 and col. 6, lines 20-50)

Lastly, Black's recitation of "determining a best tool for the one of the plurality of operations having the most influence by retrieving a maximum statistical characteristic" only discusses "discriminant factors" to identify a node for either the cause of an anomaly, or to identify a node that is likely not to have contributed to a failed wafer, but not to identify the best tool. (cols. 6-7, lines 51-5)

The Examiner noted that Black fails to disclose "outputting at least one best process path from the plurality of process paths, wherein the at least one best process path includes the best tool." However, the Examiner argued that this feature is disclosed in Nishihata. Nishihata discloses isolating an inoperable processing unit and "carrying wafers to operable ones of the processing units using the transferring unit and processing the wafers using only the operable processing units." Basically, Nishihata teaches identifying and avoiding inoperable processing units. Once an inoperable processing unit is discovered, it is no longer used and only the operable processing units are used.

Nishihata's recitation of "outputting at least one best process path from the plurality of process paths, wherein the at least one best process path includes the best tool" only shows four different routes and discusses how one route could be a combination of A and B and the existence of a route C and D. (col. 10, lines 26-46) There is no discussion of this being the "best process path from the plurality of process paths, wherein the at least one best process path includes the best tool." There is no discussion that this process path includes "the best tool." Therefore, a patent that teaches using an operable processing unit, instead of an inoperable processing unit, fails to teach, disclose or suggest, "outputting at least one best process path from the plurality of process paths, wherein the at least one best process path includes the best tool."

To establish a prima facie case of obviousness, the prior art references, in addition to other requirements, when combined must teach or suggest all the claim limitations of the patent at issue. Black and Nishihata fail to teach or suggest all the limitations of claim 1. The arguments concerning claim 1 are applicable to the rejections of independent claims 7 and 12, by virtue of their dependency to claim 1. Based on the arguments above, Applicant requests that the Examiner withdraw the rejection of claims 1, 7 and 12 under 35 U.S.C. §103. In addition, claims 2-6, 8-11, and 13-14 are dependent on claims 1, 7 or 12. At least by virtue of their dependency, Applicant requests that the Examiner withdraw the rejection of claims 2-6, 8-11, and 13-14.

The Examiner also rejected claim 15 under 35 U.S.C. § 102(e) as being anticipated by Lin et al. Lin et al. discloses storing an image of a defect on a

semiconductor wafer and assigning a description label to this defect. The Examiner semiconductor wafer and assigning a descriptive label to this defect. The Examiner argued that Lin et al. discloses "the microprocessor reading the plurality of yield data and process path data, using an analysis of variance method for identifying the most influential operation from the plurality of operations." Lin et al. discloses a defect classification computer for locating and detecting each anomaly, which doesn't take the process path data into consideration, the computer also doesn't consider the "most influential operation from the plurality of operations." (col. 18, lines 20-55, and Fig. 19) Based on the arguments above, Applicant requests that the Examiner withdraw the rejection of claim 15 under 35 U.S.C. § 102(e). In addition, claims 16-17 are dependant upon claim 15. At least by virtue of their dependency, claims 16 and 17 should be allowed.

CONCLUSION

In view of the foregoing remarks, Applicant respectfully requests the reconsideration and reexamination of this application and the timely allowance of the pending claims. The preceding arguments are based only on the arguments in the Office Action, and therefore do not address patentable aspects of the invention that were not addressed by the Examiner in the Office Action. The claims may include other elements that are not shown, taught, or suggested by the cited art. Accordingly, the preceding argument in favor of patentability is advanced without prejudice to other bases of patentability.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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